



7-25-07

1635

PTO/SB/21 (04-07) Approved for use through 09/30/2007. OMB 0651-0031

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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	Attorney Docket Number	UPN0027-100
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ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached  <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s)  <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers  <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
<b>Remarks</b> VIA EXPRESS MAIL LABEL NO. EM028606532US DATE SENT: July 23, 2007		

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Pepper Hamilton, LLP		
Signature			
Printed name	Mark DeLuca		
Date	7/20/07	Reg. No.	54788 33,229 (MD)

### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

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UPN0027-100

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Artemis G. Hatzigeorgiou et al. Confirmation No: 1574

Serial No.: 10/564,707 Group Art Unit: 1635

Filing Date: June 30, 2006 Examiner: To Be Determined

For: **METHOD AND SYSTEMS FOR IDENTIFYING MICRO-MA TARGETS AND  
SYNTHESIZING NOVEL MICRO-MAS AND USES OF THE SAME**

VIA EXPRESS MAIL LABEL NO: EM028606532US

DATE SENT: July 23, 2007

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**INFORMATION DISCLOSURE STATEMENT**

Pursuant to 37 C.F.R. §§ 1.56 and in accordance with 37 C.F.R. §§ 1.97 and 1.98, information relating to the above-identified application is hereby disclosed, the Examiner in charge of the above-identified application is requested to consider and make of record the references listed on the PTO Form SB/08B, formerly known as PTO Form 1449 submitted herewith.

Inclusion of the information submitted herewith is not to be construed as an admission that the information is material as that term is defined in 37 C.F.R. § 1.56(b).

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made.

**This Information Disclosure Statement is being filed:**

- within three months of the filing date of the patent application.
- within three months of the date of entry into the national stage as set forth in 37 C.F.R. § 1.491 of the international application.
- before** the mailing date of a first Office Action on the merits.
- after** the mailing date of a first Office Action on the merits, but before the mailing date of a Final Office Action under 37 C.F.R. § 1.116 or a Notice of Allowance under 37 C.F.R. § 1.311, and accordingly is accompanied by:
  - the Statement under 37 C.F.R. § 1.97(e) (see "Statement" below);  
**or**
  - the Fee of \$180.00 set forth in 37 C.F.R. § 1.17(p); or
  - No fee is owed by the applicant(s).
- In accordance with 37 C.F.R. § 1.129(a), this Information Disclosure Statement is being filed in connection with  the first or  second After Final Submission, and accordingly is accompanied by the Statement under 37 C.F.R. § 1.97(e) (see "Statement" below) and the fee of \$180.00 as set forth in 37 C.F.R. § 1.17(p), is attached.
- after** the mailing date of a Final Office Action under 37 C.F.R. § 1.116 or a Notice of Allowance under 37 C.F.R. § 1.311, but before the payment of the Issue Fee, and accordingly is accompanied by the Statement under 37 C.F.R. § 1.97(e), (see "Statement," and "Fees" below).
- Copies of the references listed on the attached PTO Form SB/08A and SB/08b, formerly known as PTO Form 1449 are enclosed.

**EXCEPT THAT:**

- In view of the voluminous nature of references @@, @@ and, @@, and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.
- In accordance with 37 C.F.R. § 1.98(d), copies of the references listed on the attached PTO Form SB/08A and PTO Form SB/08B, formerly known as PTO Form 1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C. § 120 have been made in the instant application.
- If any of the foregoing publications are not available to the Examiner, Applicant will endeavor to supply copies at the Examiner's request.

**Statement under 37 C.F.R. § 1.97(e)**

- The undersigned attorney hereby states that each item information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.

**Fees**

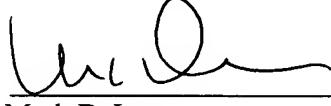
- No Fee is owed by the applicant(s).
- The Information Disclosure Statement Fee of \$180.00 under 37 C.F.R. § 1.17(p) is enclosed herewith.

**Method of Payment of Fees**

- Attached is a check in the amount of \$\_\_\_\_\_ . This form is submitted in duplicate.
- Charge Deposit Account No. 50-0436 in the amount of \$180.00. This form is submitted in duplicate.
- The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account 50-0436.
- No fee or Statement is required under 37 C.F.R. § 1.97(b) as no first Office Action on the merits has been received by Applicants.

Respectfully submitted,

By:

  
\_\_\_\_\_  
Mark DeLuca  
Registration No. ~~54,733~~ 33229 MU

Dated: July 20, 2007

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Substitute for form 1449B/PTO				<b>Complete if Known</b>	
				<i>Application Number</i>	10/564,707
				<i>Filing Date</i>	June 30, 2006
				<i>First Named Inventor</i>	Artemis G. Hatzigeorgiou
				<i>Art Unit</i>	1635
				<i>Examiner Name</i>	To Be Determined
Sheet	1	of	6	<i>Attorney Docket Number</i>	UPN0027-100

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		
	AA	Abrahante et al., "The <i>Caenorhabditis elegans</i> hunchback-like Gene lin-57/hbl-1 Controls Developmental Time and Is Regulated by MicroRNAs," <i>Dev Cell</i> 4:625-37, 2004.		T <sup>2</sup>
	AB	Amarzguioui et al. "Tolerance for mutations and chemical modifications in a siRNA," <i>Nucleic Acids Res</i> 31: 589-95, 2003.		
	AC	Ambros et al., "A uniform system for microRNA annotation," (2003) <i>RNA</i> 9:277-9.		
	AD	Ambros et al., "MicroRNAs and Other Tiny Endogenous RNAs in <i>C. elegans</i> ," (2003) <i>Curr Biol</i> 13:807-18		
	AE	Aukerman et al., "Regulation of Flowering Time and Floral Organ Identity by a MicroRNA and Its APETALA2-Like Target Genes," (2003) <i>Plant Cell</i> 15:2730-41.		
	AF	Bartel et al., "MicroRNAs: At the Root of Plant Development?" <i>Plant Physiol</i> (2003) 132:709-17.		
	AG	Bartel et al., "MicroRNAs: genomics, biogenesis, mechanism, and function," (2004) <i>Cell</i> 116:281-97..		
	AH	Bernstein et al., "Role for a bidentate ribonuclease in the initiation step of RNA interference," (2001) <i>Nature</i> 409:363-6.		
	AI	Bohsack et al., "Exportin 5 is a RanGTP-dependent dsRNA-binding protein that mediates nuclear export of pre-miRNAs," (2004) <i>RNA</i> 10:185-91.		
	AJ	Brennecke et al., "Bantam Encodes a Developmentally Regulated microRNA that Controls Cell Proliferation and Regulates the Proapoptotic Gene hid in <i>Drosophila</i> ," (2003) <i>Cell</i> 113:25-36.		
	AK	Calin et al., "Frequent deletions and down-regulation of micro-RNA genes miR15 and miR16 at 13q14 in chronic lymphocytic leukemia," (2002) <i>Proc Natl Acad Sci USA</i> 99:15524-9.		

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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				<i>First Named Inventor</i>	Artemis G. Hatzigeorgiou
				<i>Art Unit</i>	1635
				<i>Examiner Name</i>	To Be Determined
Sheet	2	of	6	<i>Attorney Docket Number</i>	UPN0027-100

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	AL	Chen, "A microRNA as a translational repressor of APETALA2 in Arabidopsis Flower Development," (2002) <i>Science</i> 303:2022-25.		
	AM	Doench et al., "siRNAs can function as miRNAs," (2003) <i>Genes Dev</i> 17:438-42.		
	AN	Doench et al., "Specificity of microRNA target selection in translational repression," (2004.) <i>Genes Dev</i> 18: 504-11.		
	AO	Dostie et al., "Numerous microRNPs in neuronal cells containing novel microRNAs," (2003) <i>RNA</i> 9:180-186.		
	AP	Elbashir et al., "RNA interference is mediated by 21- and 22-nucleotide RNAs," (2001) <i>Genes Dev</i> 15:188-200		
	AQ	Enright et al., "MicroRNA targets in Drosophila," (2003) <i>Genome Biology</i> 5(1)R1.		
	AR	Grishok et al., "Genes and mechanisms related to RNA interference regulate expression of the small temporal RNAs that control C. elegans developmental timing," (2001) <i>Cell</i> 106:23-34.		
	AS	Ha et al., "A bulged lin-4/lin-14 RNA duplex is sufficient for <i>Caenorhabditis elegans</i> lin-14 temporal gradient formation," (1996) <i>Genes Dev</i> 10:3041-50.		
	AT	Hamilton et al., "A species of small antisense RNA in posttranscriptional gene silencing in plants," <i>Science</i> (1999.) 286:950-2.		
	AU	Hammond et al., "Argonaute2, a link between genetic and biochemical analyses of RNAi," <i>Science</i> (2001) 293:1146-50.		
	AV	Hutvagner et al., "A cellular function for the RNA-interference enzyme Dicer in the maturation of the let-7 small temporal RNA," (2001) <i>Science</i> 293:834-8.		
	AW	Hutvagner et al., "A microRNA in a multiple-turnover RNAi enzyme complex," (2002) <i>Science</i> 297:2056-60.		

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

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Sheet	3	of	6	Attorney Docket Number	UPN0027-100
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	AX	Kasprzyk et al., "EnsMart: a generic system for fast and flexible access to biological data," (2004) <i>Genome Res</i> 14:160-9.	
	AY	Kasschau et al., "P1/HC-Pro, a viral suppressor of RNA silencing, interferes with Arabidopsis development and miRNA unction," (2003) <i>Dev Cell</i> 4: 205-17.	
	AZ	Ketting et al., "Dicer functions in RNA interference and in synthesis of small RNA involved in developmental timing in <i>C. elegans</i> ," (2001) <i>Genes Dev</i> 15:2654-9.	
	BA	Khvorova et al., "Functional siRNAs and miRNAs exhibit strand bias," (2003) <i>Cell</i> 115:209-16.	
	BB	Knight et al., "A role for the RNase III enzyme DCR-1 in RNA interference and germ line development in <i>Caenorhabditis elegans</i> ," (2001) <i>Science</i> 293:2269-71.	
	BC	Lagos-Quintana et al., "Identification of novel genes coding for small expressed RNAs," (2001) <i>Science</i> 294: 853-8.	
	BD	Lagos-Quintana et al., "Identification of tissue-specific microRNAs from mouse," (2002) <i>Curr Biol</i> 12: 735-9.	
	BE	Lai, "Micro RNAs are complementary to 3' UTR sequence motifs that mediate negative post-transcriptional regulation," (2002) <i>Nat Genet</i> 30: 363-4.	
	BF	Lai et al., "Computational identification of <i>Drosophila</i> microRNA genes," (2003) 4:R42.	
	BG	Lau et al., "An abundant class of tiny RNAs with probable regulatory roles in <i>Caenorhabditis elegans</i> ," (2001) <i>Science</i> 294: 858-62.	
	BH	Lee et al., "An extensive class of small RNAs in <i>Caenorhabditis elegans</i> ," (2001), <i>Science</i> 294:862-4, 294:882-864.	

Examiner Signature		Date Considered
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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of

6

**Complete if Known**

<i>Application Number</i>	10/564,707
<i>Filing Date</i>	June 30, 2006
<i>First Named Inventor</i>	Artemis G. Hatzigeorgiou
<i>Art Unit</i>	1635
<i>Examiner Name</i>	To Be Determined
<i>Attorney Docket Number</i>	UPN0027-100

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	BI	Lee et al., "The <i>C. elegans</i> heterochronic gene lin-4 encodes small RNAs with antisense complementarity to lin-14," (1993) <i>Cell</i> 75:843-54.	
	BJ	Lee et al., "The nuclear RNase III Drosha initiates microRNA processing," (2003) <i>Nature</i> 425:415-9	
	BK	Lewis et al., "Prediction of mammalian microRNA targets," (2003) <i>Cell</i> 115:787-98.	
	BL	Lim et al. "The microRNAs of <i>Caenorhabditis elegans</i> ," (2003) <i>Genes Dev</i> 17:991-1008.	
	BM	Lin et al., "The <i>C. elegans</i> hunchback Homolog, hbl-1, Controls Temporal Patterning and Is a Probable MicroRNA Target," (2003) <i>Dev Cell</i> 4: 639-50.	
	BN	Llave et al., "Cleavage of Scarecrow-like mRNA targets directed by a class of <i>Arabidopsis</i> miRNA," (2002) <i>Science</i> 297:2053-6.	
	BO	Lund et al., "Nuclear export of microRNA precursors," (2004) <i>Science</i> 303:95-8.	
	BP	Martinez et al., "Single-stranded antisense siRNAs guide target RNA cleavage in RNAi," <i>Cell</i> 110:563-74.	
	BQ	Mazumder et al., "Translational control by the 3'-UTR: the ends specify the means," (2003) <i>Trends Biochem Sci</i> 28:91-8.	
	BR	Michael et al., "Reduced accumulation of specific microRNAs in colorectal neoplasia," (2003) <i>Mol Cancer Res</i> 1:882-91.	
	BS	Moss et al., "The cold shock domain protein LIN-28 controls developmental timing in <i>C. elegans</i> and is regulated by the lin-4 RNA," (1997), <i>Cell</i> , 88:637-46.	
	BT	Moss et al., "Conservation of the heterochronic regulator Lin-28, its developmental expression and microRNA complementary sites," (2003) <i>Dev Biol</i> 258:432-42.	
	BU	Mourelatos et al., "miRNPs: a novel class of ribonucleoproteins containing numerous microRNAs," (2002) <i>Genes Dev</i> 16: 720-8.	

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PTO/SB/08b(08-03)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

5 of 6

**Complete if Known**

<i>Application Number</i>	10/564,707
<i>Filing Date</i>	June 30, 2006
<i>First Named Inventor</i>	Artemis G. Hatzigeorgiou
<i>Art Unit</i>	1635
<i>Examiner Name</i>	To Be Determined
<i>Attorney Docket Number</i>	UPN0027-100

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	BV	Nussinov "Nearest neighbor nucleotide patterns. Structural and biological implications," (1981) <i>J Biol Chem</i> 256:8458-62.	
	BW	Olsen et al., "The lin-4 regulatory RNA controls developmental timing in <i>Caenorhabditis elegans</i> by blocking LIN-14 protein synthesis after the initiation of translation," (1999) <i>Dev Biol</i> 216: 671-80.	
	BX	Palatnik et al., "Control of leaf morphogenesis by microRNAs," (2003) <i>Nature</i> 425:257-63.	
	BY	Pesole et al., "UTRdb and UTRsite: specialized databases of sequences and functional elements of 5' and 3' untranslated regions of eukaryotic mRNAs," (2002) <i>Nucleic Acids Res</i> 30: 335-40.	
	BZ	Pruitt et al., "NCBI Reference Sequence project: update and current status," (2003) <i>Nucleic Acids Res</i> 31:34-7.	
	CA	Reinhart et al., "The 21-nucleotide let-7 RNA regulates developmental timing in <i>Caenorhabditis elegans</i> ," (.2000) <i>Nature</i> 403:901-6.	
	CB	Rhoades et al., "Prediction of plant microRNA targets," (2002) <i>Cell</i> 110:513-20.	
	CC	Schwarz et al., "Asymmetry in the assembly of the RNAi enzyme complex," (2003) <i>Cell</i> 115:199-208.	
	CD	Seggerson et al., "Two genetic circuits repress the <i>Caenorhabditis elegans</i> heterochronic gene lin-28 after translation initiation," (2002) <i>Dev Biol</i> 243:215-25.	
	CE	Seitz et al., "Imprinted microRNA genes transcribed antisense to a reciprocally imprinted retrotransposon-like gene," (2003) <i>Nat Genet</i> 34: 261-2.	
	CF	Stark et al., "Identification of <i>Drosophila</i> MicroRNA Targets," (2003) <i>Plos Biology</i> 1: 1-13.	
	CG	Tang et al., "A biochemical framework for RNA silencing in plants," (2003) <i>Genes Dev</i> 17: 49-63.	
	CH	Tinoco et al., "Improved estimation of secondary structure in ribonucleic acids," (1973) <i>Nat New Biol</i> 246(150):40-41.	

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INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 6 of 6

Complete if Known	
Application Number	10/564,707
Filing Date	June 30, 2006
First Named Inventor	Artemis G. Hatzigeorgiou
Art Unit	1635
Examiner Name	To Be Determined
Attorney Docket Number	UPN0027-100

## NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	CI	Vella et al., "The C. elegans microRNA let-7 binds to imperfect let-7 complementary sites from the lin-41 3'UTR," (2004) <i>Genes Dev</i> 18:132-7.	
	CJ	Wightman et al., "Posttranscriptional regulation of the heterochronic gene lin-14 by lin-4 mediates temporal pattern formation in C. elegans," (1993) <i>Cell</i> 75:855-62.	
	CK	Xie et al., "Negative Feedback Regulation of Dicer-Like1 in Arabidopsis by microRNA-Guided mRNA Degradation," (2003) <i>Curr Biol</i> 13:784-9.	
	CL	Xu et al., "The Drosophila MicroRNA Mir-14 Suppresses Cell Death and Is Required for Normal Fat Metabolism," (2003) <i>Curr Biol</i> 13:790-5.	
	CM	Yiet al., "Exportin-5 mediates the nuclear export of pre-microRNAs and short hairpin RNAs," (2003) <i>Genes Dev</i> 17:3011-6.	
	CN	Zeng et al., "Both natural and designed micro RNAs can inhibit the expression of cognate mRNAs when expressed in human cells," (2002) <i>Mol Cell</i> 9:1327-33	
	CO	Nelson et al., "The microRNA world: small is mighty," (2003) <i>Trends Biochemical Science</i> 28:534-540.	
	CP	Nelson et al., "miRNP:mRNA association in polyribosomes in a human neuronal cell line. (2004) <i>RNA</i> 10:387-394.	

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